QIMR Berghofer researchers are using imaging technology to identify changes that occur in the brains of people with depression. They hope to use the information to develop a way to diagnose people with different sub-types of Major Depressive Disorder (MDD).

According to the head of the Translational Neuroscience Group at QIMR Berghofer, Dr Christine Guo, at least one in five Australians will be affected by MDD at some time in their lives.

“The underlying changes in the brain can be quite different in patients with different types of depression,” Dr Guo said.

“This is important because it means that different patients need, and will respond to, different kinds of treatment.

“The problem for doctors is that patients with different kinds of depression often display the same symptoms, including sad mood, low energy and interrupted sleep.”

“This means that doctors can’t necessarily reach the correct diagnosis just by talking to patients. In fact it’s very difficult for doctors to diagnose patients correctly, but it’s crucial that they do because only then can they ensure that patients are getting the right treatment.”

Dr Guo and her colleagues did MRI scans on the brains of patients who were diagnosed at a specialist clinic with two subtypes of depression – melancholia and non-melancholic depression.

The researchers observed the changes that happened in different parts of the brain as the patients watched happy and sad movies.

“We were able to see two quite different sets of changes happening in the brains of the two groups,” Dr Guo said.

“By identifying the distinct neurobiological changes that are associated with different types of depression, we hope that we will in future be able to use MRI scans to accurately diagnose patients so they can receive the most appropriate treatment.”
Scientists at QIMR Berghofer are leading the most comprehensive mesothelioma genome sequencing project ever undertaken, in order to find the genetic changes that cause mesothelioma.

Mesothelioma is an incurable cancer that is usually caused by inhaling asbestos fibres. Australia currently has the world's highest rates of this aggressive cancer.

Dr Nic Waddell has teamed up with Bioinformatics manager John Pearson, collaborators in Western Australia, and the National Centre of Asbestos Related Diseases to identify which genes become mutated by exposure to asbestos and then cause mesothelioma.

The researchers will sequence the tumour genomes of about 100 people with mesothelioma and analyse the large amount of data using high-performance computers. Thanks to an award from the Ian Potter Foundation, this data will now be combined with existing data generated by researchers from around the world, to allow the QIMR Berghofer researchers to assemble and analyse the largest mesothelioma dataset.

“It could also identify new candidate opportunities for therapy.”

Dr Waddell said.

Mr Pearson said survival time for patients with mesothelioma had not improved in recent decades.

“Unfortunately, the current treatment options of surgery, chemotherapy and radiotherapy don’t significantly increase survival time, with patients living an average of nine months from the time they are diagnosed,” he said.

“We desperately need new treatments for this devastating cancer, but that can’t happen until we can get a detailed understanding of the genetic changes that cause mesothelioma.”

“This study won’t give us all of the answers, but it will be a good start.”
What field of research do you work in?
I work in statistical genetics. I use statistical and computational methods to try to better understand how the genes a person is born with can influence their disease risk.

What do you love about the field?
Genetics is a fascinating subject. Nearly all human behaviour – from your cancer risk to how much alcohol you drink to how anxious you are – is influenced at least in part by inherited genetic factors. I love finding out how genes act and interact to influence different traits.

What drives and inspires you?
I’ve become increasingly excited about how we can use genetic data to improve human health. Early genetic studies had a major impact on clinical practice for some rare diseases and in the future I look forward to genetic information becoming more routinely used to diagnose and treat more common diseases.

What’s a project you’re working on at the moment?
We’ve been investigating how genetic data can be used to determine the causes of certain diseases. For example, it is difficult to know whether obesity causes oesophageal cancer, or whether both are due to some other factor like poor diet. We applied a particular approach to the genetic data and demonstrated that obesity is likely to be a cause of oesophageal cancer.

What has been one of your career highlights so far?
I started work 10 years ago on statistical methods for cost effective gene-mapping studies. One of the first successful applications of this approach was a study which sought to understand how inherited variation determines melanoma risk. This study was the first of its kind internationally and kick-started my interest in melanoma genetics. Since then, QIMR Berghofer staff have discovered more than half of the two dozen genes now known to influence melanoma risk.

Unfortunately there is currently no universally agreed test to diagnose mental illness despite it being a major risk factor for suicide.

Sheldon was a charismatic, energetic, intelligent young man but his behaviour could at times be volatile. Eventually Sheldon was diagnosed with paranoid schizophrenia.

After a troubled life he reached a point of such utter desperation that he took his own life.

The toughest thing to bear is that the last call he made was to his mum and dad, to say goodbye and tell them that he loved them.

Research into mental illness at QIMR Berghofer could help stop sufferers reaching desolation and avoid families losing loved ones under heartbreaking circumstances.

For more information visit our website or please consider making a donation using the enclosed form.
Estate of Evelyn Dutton

We would like to acknowledge and thank the Estate of Evelyn Monica Dutton. Evelyn’s Estate has been supporting research at QIMR Berghofer since 2011 and is a great example of how a gift from one individual can make a difference to many.

Evelyn’s Wall of Appreciation plaque

Evelyn suffered several illnesses herself and recognised the importance of QIMR Berghofer in the development of cures and the alleviation of suffering for others.

We truly appreciate the support of Evelyn’s Gift in Will and the research that has been made possible due to her foresight.

If you would like to discuss a Gift in your Will to support research at QIMR Berghofer, please telephone Sally or Heather on 1800 993 000 for a confidential discussion.

Thank you from Cecilia

To each and every wonderful person who donated to the QIMR Berghofer ovarian cancer fundraising appeal in June 2016, I thank you from the bottom of my heart.

Your kindness and generosity gives hope for the future for all women and their families facing this awful diagnosis. With your support, I feel confident for a bright future in the detection, treatment and potential eradication of this insidious disease.

With much love,

Cecilia

Estate of Evelyn Dutton

A great time was had by all who took part in the Gold Coast Airport Marathon on 2 and 3 July.

Join Team Eureka! www.qimrberghofer.edu.au and visit Team Eureka under the Support Us tab.

Upcoming events

Walking on Sunshine Foundation Race Day
Saturday 3 December
12.00 pm - 5.00 pm
Eagle Farm Racecourse “Birdcage”

Cost: $170 includes racecourse admission, cocktail menu, beer, wine and champagne

Tickets: contact Annie 0417 648 489 or annie@walkingonsunshinefoundation.com or Jo 0412 515 876 or jo@walkingonsunshinefoundation.com

Brisbane Open House
QIMR Berghofer is opening its doors for Brisbane Open House on Sunday 9 October
10.00 am - 3.00 pm

- Take a guided tour of the Institute (departing 15 minutes past and 15 minutes to the hour)
- Discover different cells under microscopes
- Listen to scientists talk about the latest advances in medical research

For the full program of activities, visit our website: www.qimrberghofer.edu.au